

IN THE CLAIMS:

Please cancel claims 1-21 without prejudice or disclaimer, and substitute new Claims 22-42 therefor as follows:

Claims 1-21 (Cancelled).

22. (New) A process for preparing a photovoltaic device including at least one film of at least one semiconductive metal oxide with a major amount of a nanosized photocatalytic crystalline phase, comprising the steps of:

a) obtaining the at least one semiconductive metal oxide with a major amount of a photocatalytic crystalline phase;

b) forming a suspension of the at least one semiconductive metal oxide with a major amount of a photocatalytic crystalline phase in an aqueous solution containing at least a hydrosoluble organic polymer and a hydrolysable organic derivative of metal of the metal oxide;

c) depositing the resulting suspension on a substrate to give a film;
and

d) treating said film at a temperature between about 30°C and about 100°C in the presence of water.

23. (New) The process according to claim 22, wherein the semiconductive metal oxide is titanium oxide with a major amount of anatase phase.

24. (New) The process according to claim 22, wherein the hydrosoluble organic polymer is selected from polyvinylpyrrolidone, polyethylene glycol,

polypropylene glycol, polytetramethylene glycol, cellulose acetate, cellulose nitrate, hydroxypropylcellulose, polyvinyl alcohol, polyvinyl acetate, and polyvinyl chloride.

25. (New) The process according to claim 24, wherein the hydrosoluble organic polymer is polyethylene glycol.

26. (New) The process according to claim 25, wherein the polyethylene glycol has a molecular weight between 600 and 300,000.

27. (New) The process according to claim 26, wherein the polyethylene glycol has molecular weight between 3,000 and 10,000.

28. (New) The process according to claim 24, wherein the hydrosoluble organic polymer contains monomeric units bearing hydroxy groups in a percentage lower than 90% by weight.

29. (New) The process according to claim 22, wherein the hydrolysable organic derivative of metal of the metal oxide is an ester derivative.

30. (New) The process according to claim 29, wherein said ester derivative contains one or more groups selected from hydroxy, alkoxy, carbonyl and carboxy.

31. (New) The process according to claim 22, wherein the hydrolysable organic derivative of metal of the metal oxide is selected from titanium diisopropoxide bisacetyl acetonate, titanium dibutoxide bis2,4-pentanedionate, titanium lactate, titanium methacrylate triisopropoxide, titanium methacryloxyethylacetoacetate triisopropoxide, titanium oxide bispentanedionate, titanium oxide bistetramethylheptanedionate, titanium diisopropoxide bistetramethylheptanedionate, and titanium allylacetoacetatetriisopropoxide.

32. (New) The process according to claim 31, wherein the hydrolysable organic derivative is titanium diisopropoxide bisacetyl acetate.

33. (New) The process according to claim 22, wherein the aqueous solution comprises a stabilizer.

34. (New) The process according to claim 33, wherein the stabilizer is selected from acetic acid, citric acid, propionic acid, butyric acid, butylacetic acid, vinylacetic acid, oxalic acid, succinic acid, maleic acid, adipic acid, stearic acid, and lactic acid.

35. (New) The process according to claim 34, wherein the stabilizer is acetic acid.

36. (New) The process according to claim 35, wherein the stabilizer is, in a molar amount, more than double with respect to the hydrolysable organic titanium compound.

37. (New) The process according to claim 36, wherein the molar ratio hydrolysable organic derivative/stabilizer is from 1:4 to 1:10.

38. (New) The process according to claim 22, wherein step d) is performed at a temperature between 80°C and 100°C.

39. (New) The process according to claim 22, wherein step d) is performed for a time between 2 hours and 5 hours.

40. (New) The process according to claim 22, wherein said step d) is preceded by a drying step.

41. (New) The process according to claim 22, wherein the photovoltaic device is a smart card.

42. (New) A process for preparing a film comprising at least one semiconductive metal oxide with a major amount of a nanosized photocatalytic crystalline phase, comprising the steps of:

a) obtaining the at least one semiconductive metal oxide with a major amount of a photocatalytic crystalline phase;

b) forming a suspension of the at least one semiconductive metal oxide with at least one semiconductive metal oxide in an aqueous solution containing at least a hydrosoluble organic polymer and a hydrolysable organic derivative of said metal oxide;

c) depositing the resulting suspension on a substrate to give a film;
and

d) treating said film at a temperature between about 30°C and about 100°C in the presence of water.